

HOW I DO IT

Repair After Radical Groin Dissection

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INTRODUCTION

For patients with palpable nodes in the groin from malignant melanoma, the incidence of involvement of the deep nodes is considerable, i.e., about 40% [1,2]. When the inguinal nodes are found upon elective dissection to have a microscopic metastasis, the incidence of simultaneous or later involvement of the deep nodes is 18% [2].

Despite the prevailing pessimism and poor survival reported in the literature with deep node involvement (5-year survival rate 0–16%) [3–8], in our experience the 5-year survival rate on repeated reviews of patients with such involvement is about 34% and the 10-year survival rate 25% [9], suggesting that a thorough dissection of the deep nodes through an exposure in continuity provides an appreciable survival for these patients. When the deep nodes are involved, the obturator nodes are affected with metastases at about the same frequency as the iliac nodes; therefore, it is mandatory that a thorough dissection of both iliac and obturator nodes be done if dissection of the deep nodes is undertaken. This is best done through an in continuity en-bloc dissection of the inguinal and deep nodes by dividing the inguinal ligament lateral to the femoral artery and the anterolateral abdominal wall muscles along the iliac crest [10]. The inferior epigastric vessels are ligated and divided at their origin, and the peritoneum is displaced superomedially through a combination of blunt and sharp dissection; thus, the entire nodal basin of the inguinal and deep retroperitoneal nodes is exposed in one continuous field, permitting a thorough dissection and removal of all deep nodes. When the deep nodes appear to be clinically unremarkable, one may start the dissection at the bifurcation of the common iliac artery and, proceeding caudally, remove the external iliac and obturator nodes en bloc with the superficial nodes. When the deep nodes are clinically suspicious, one may extend the dissection to the level of the bifurcation of the aorta, thus including the common iliac nodes in the specimen. For higher dissections, the abdominoinguinal incision is preferable [11].

Some authors continue to dissect the deep nodes through a separate incision above the inguinal ligament, fearing possible complications accruing from a division of the inguinal ligament, specifically postoperative incisional hernia, which might be difficult to reconstruct. This approach has two disadvantages: (1) it requires division of the specimen through lymphatics possibly contaminated by tumor cells at the lower opening of the femoral canal below the inguinal ligament, resulting in separate removal of the superficial from the deep nodes; (2) exposure of the deep nodes is more limited, and behind the bridge of the intact inguinal ligament and adjacent external oblique aponeurosis, lymphatic tissue and nodes may be left behind due to lack of exposure.

However, the fear of a postoperative incisional hernia if the inguinal ligament is divided is in our experience unfounded. In about 150 radical groin dissections involving division of the inguinal ligament, there has not been a single instance of incisional postoperative hernia attributable to this technical maneuver. Proper repair, however, of the inguinal ligament and adjacent spaces is crucial to avoiding this potential complication.

SURGICAL TECHNIQUE

In our practice, the internal oblique and transversus abdominis are approximated with absorbable material and the external oblique aponeurosis and inguinal ligament with non-absorbable monofilament suture. Figure 1 illustrates the anatomy on cross section of the area. Non-absorbable, interrupted sutures are placed between the inguinal ligament and Cooper's ligament medial to the femoral vessels and between the inguinal ligament and iliac fascia lateral to the vessels, taking care to avoid ensnaring the femoral nerve with any of these lateral sutures (Fig. 2). Although the iliac fascia attenuates 2–3

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Accepted 11 March 1999

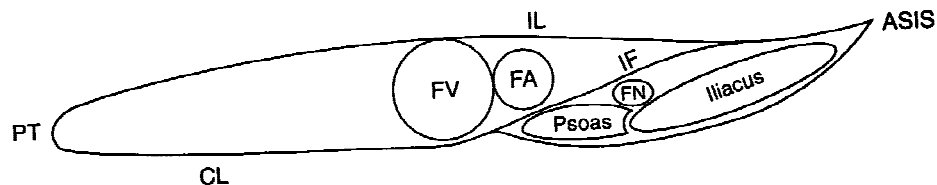


Fig. 1. Cross section of the left groin viewed from below. IL, inguinal ligament; CL, Cooper's ligament; IF, iliac fascia; PT, pubic tubercle; ASIS, anterior superior iliac spine; FA, femoral artery; FV, femoral vein; FN, femoral nerve.



Fig. 2. Operative field after a left radical groin dissection. Sutures have been placed between the inguinal ligament anteriorly and Cooper's ligament-iliac fascia posteriorly. A vessel loop is around the femoral nerve. The sartorius muscle has been divided off its origin and mobilized to the left of the picture in order to provide coverage of the vessels.



Fig. 3. The sutures have been tied, effectively closing the spaces medial and lateral to the femoral vessels.

cm below the inguinal ligament, it is still a strong fascia immediately behind the inguinal ligament and its edge is readily palpable. The femoral nerve, covered often with a modest amount of adipose tissue, can be easily identified. These lateral to the femoral artery sutures may not be necessary, and some surgeons apparently do not use them routinely without ill effects. The advisability of their placement depends on whether the surgeon has dissected the lateral third of the inguinal ligament from the iliac fascia, to which it is normally fused. At any rate, the thrust of the pressure from the intraperitoneal organs is directed mainly to the area of the femoral canal. After the sutures between the inguinal ligament and Cooper's ligament-iliac fascia are tied, there is durable, strong repair of this area (Fig. 3). Since the inguinal ligament is a taut cord over the femoral vessels, the bites are preferably taken through the shelving edge of the ligament and a small slit is made in the ligament at the point directly between the femoral artery and vein, allowing a tension-free approximation of the inguinal ligament with Cooper's ligament and iliac fascia and a better fit of the ligament around the roundness of the femoral vessels.

An additional step complementing the repair is the transposition of the sartorius muscle. At the end of the groin dissection and fascial repair, the exposed sartorius

muscle is divided at its origin from the anterior superior iliac spine and mobilized along its medial and lateral edge so that transposition over the femoral vessels may occur without tension. The lateral femoral cutaneous nerve issuing from under the lateral end of the inguinal ligament and coursing in front of the proximal end of the sartorius can be preserved if some care is exercised as the origin of this muscle is divided. One should not mobilize this muscle beyond what is necessary in order to avoid its partial devascularization. Sutures are then placed between the proximal end of the sartorius and inguinal ligament and the sides of the sartorius and adjacent tissues so that complete coverage of the femoral vessels is effected. The main reason for the mobilization of this muscle is to provide coverage of the femoral vessels so that in the unlikely event of skin necrosis at the edges of the flaps necessitating debridement the vessels will not be exposed. However, the proximal end of the sartorius provides also a "plug" in the potential narrow space between the femoral vessels and the part of the inguinal ligament anterior to the vessels.

SUMMARY

The above-described repair following ilioinguinal dissection with division of the inguinal ligament is essentially a Cooper's ligament repair providing a secure, durable reconstruction.

In our experience, there has not been a case of incisional hernia after radical inguinal groin dissection using the above reconstruction.

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